

# PATENT ABSTRACTS OF JAPAN

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## (54) TRANSMISSION METHOD

(57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a transmission method of transmitting a plurality of symbols from a base station of an MC-CDMA telecommunication system to a plurality of (K) users.

**SOLUTION:** Each symbol ( $dk$ ) to be transmitted to a user is spread over a plurality of (L) carriers (l) by encoding sequences ( $ck(l)$ ,  $ckext(l)$ ) to generate a plurality of corresponding frequency components, and the base station is provided with a plurality of (M) antenna elements. Thus, the frequency components generated by symbols of users (k) are weighted with a plurality of (M) weighting complex coefficients ( $wk^*(l, m)$ ,  $m=1, \dots, M$ ) to obtain a plurality of (LM) weighted frequency components ( $zkm(l)$ ), the weighting coefficients are for the users (k), the carriers (l) and the antenna elements (m), and the plurality of weighting coefficients are obtained from estimates of channel coefficients ( $hk(l, m)$ ) of down link transmission channels between the antenna elements and the users for each carrier frequency.



